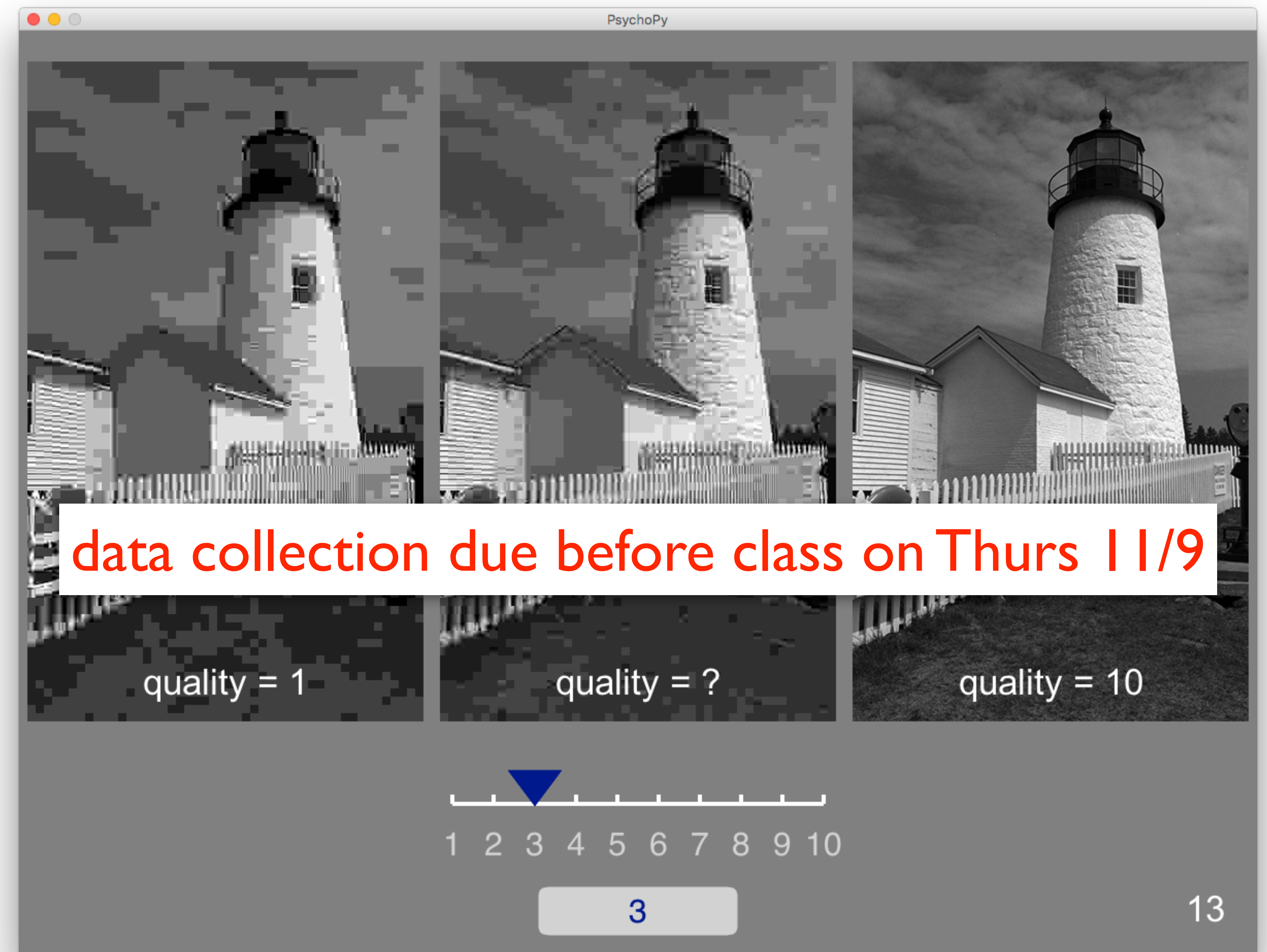
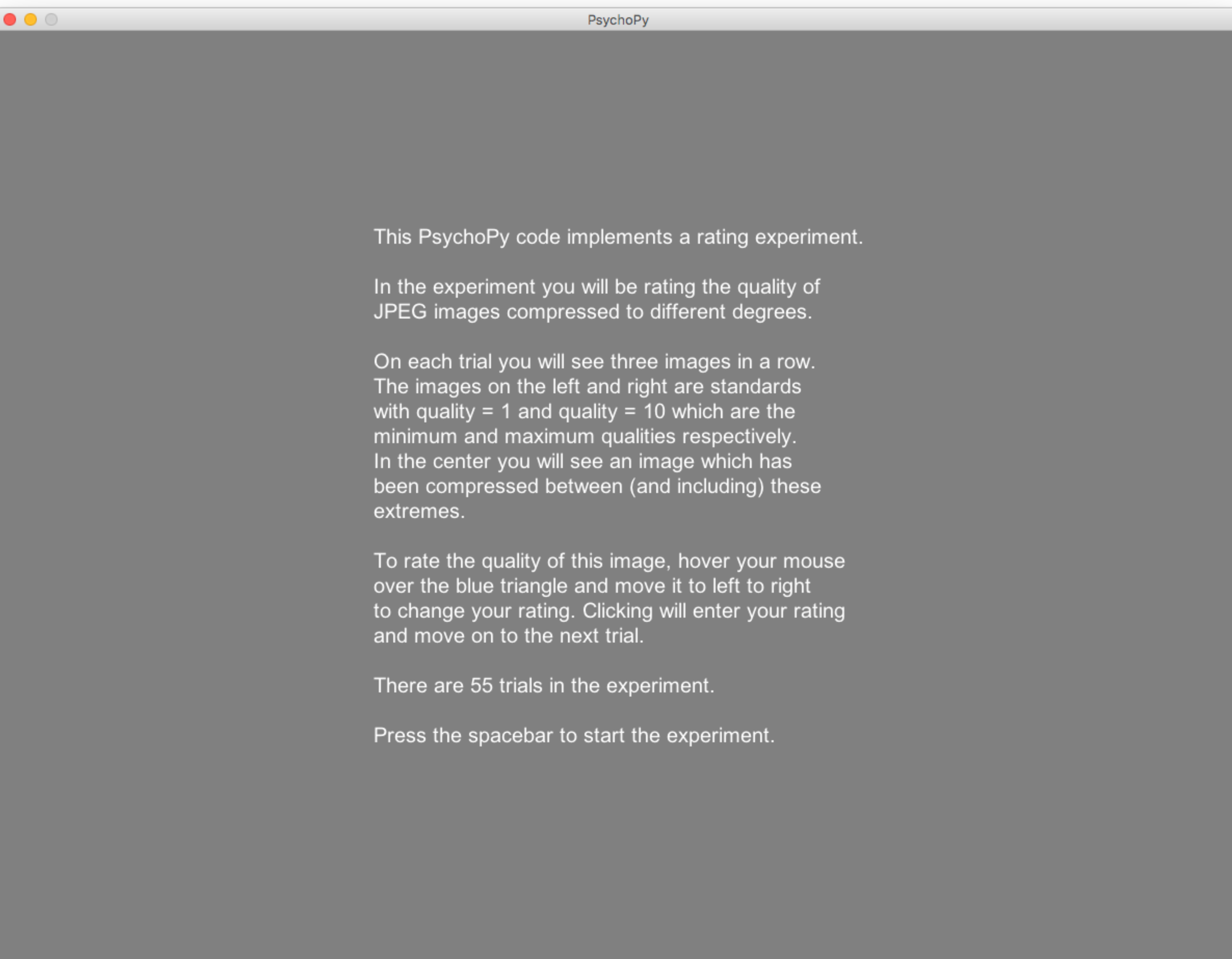
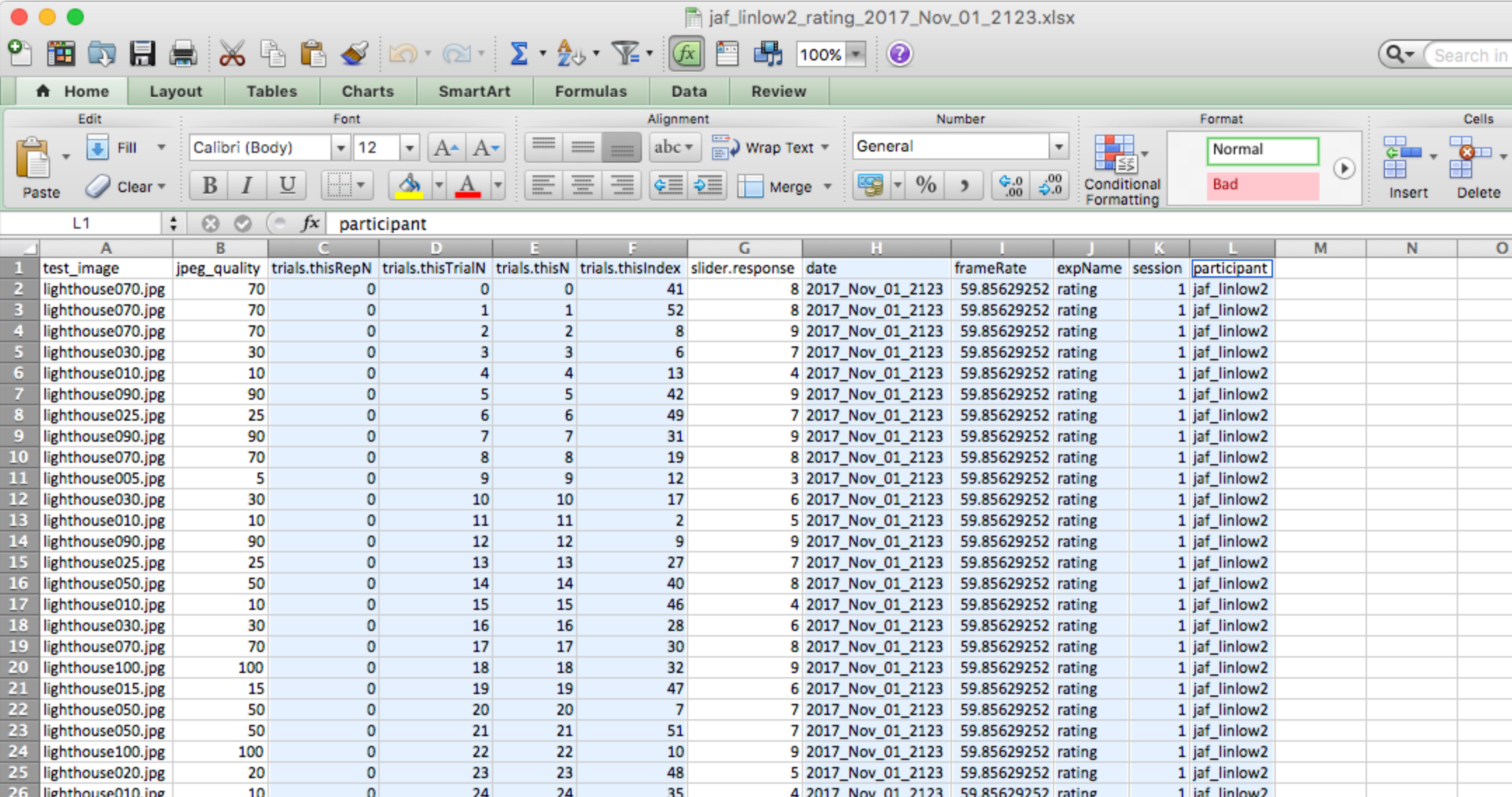


Lab 4 assignment: rating experiments



1. Download the **rating.zip** file that contains the code and resources for the rating experiment from myCourses. Unzip the file to extract the code and resources.
2. Use PsychoPy to run yourself through the experiment.
 - 2.1. Make sure to use a unique participant id so you can find results .csv file.

Lab 4 assignment: rating experiment analysis



The screenshot shows an Excel spreadsheet titled 'jaf_linlow2_rating_2017_Nov_01_2123.xlsx'. The ribbon is set to 'Formulas'. The data table is as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	test_image	jpeg_quality	trials.thisRepN	trials.thisTrialN	trials.thisN	trials.thisIndex	slider.response	date	frameRate	expName	session	participant			
2	lighthouse070.jpg	70	0	0	0	41	8	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
3	lighthouse070.jpg	70	0	1	1	52	8	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
4	lighthouse070.jpg	70	0	2	2	8	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
5	lighthouse030.jpg	30	0	3	3	6	7	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
6	lighthouse010.jpg	10	0	4	4	13	4	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
7	lighthouse090.jpg	90	0	5	5	42	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
8	lighthouse025.jpg	25	0	6	6	49	7	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
9	lighthouse090.jpg	90	0	7	7	31	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
10	lighthouse070.jpg	70	0	8	8	19	8	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
11	lighthouse005.jpg	5	0	9	9	12	3	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
12	lighthouse030.jpg	30	0	10	10	17	6	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
13	lighthouse010.jpg	10	0	11	11	2	5	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
14	lighthouse090.jpg	90	0	12	12	9	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
15	lighthouse025.jpg	25	0	13	13	27	7	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
16	lighthouse050.jpg	50	0	14	14	40	8	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
17	lighthouse010.jpg	10	0	15	15	46	4	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
18	lighthouse030.jpg	30	0	16	16	28	6	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
19	lighthouse070.jpg	70	0	17	17	30	8	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
20	lighthouse100.jpg	100	0	18	18	32	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
21	lighthouse015.jpg	15	0	19	19	47	6	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
22	lighthouse050.jpg	50	0	20	20	7	7	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
23	lighthouse050.jpg	50	0	21	21	51	7	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
24	lighthouse100.jpg	100	0	22	22	10	9	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
25	lighthouse020.jpg	20	0	23	23	48	5	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			
26	lighthouse010.jpg	10	0	24	24	35	4	2017_Nov_01_2123	59.85629252	rating	1	jaf_linlow2			

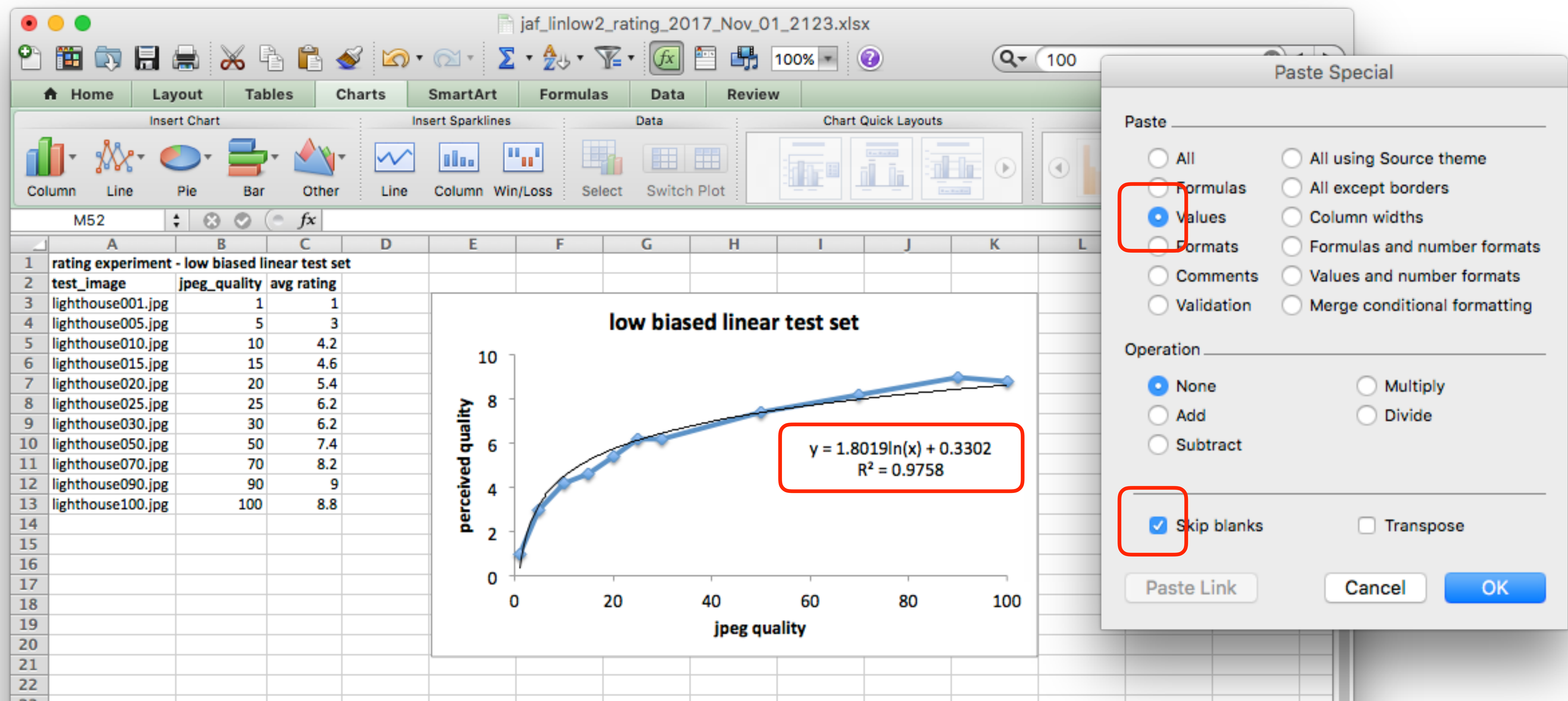
3. Open the .csv file from the experiment, save the file in .xlsx format.
4. Create a copy of the data on a new page, move to that page, and delete the highlighted rows.

Lab 4 assignment: rating experiment analysis

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	test_image	jpeg_quality	slider.response	avg rating										
2	lighthouse001.jpg	1	1											
3	lighthouse001.jpg	1	1											
4	lighthouse001.jpg	1	1											
5	lighthouse001.jpg	1	1											
6	lighthouse001.jpg	1	1	1										
7	lighthouse005.jpg	5	3											
8	lighthouse005.jpg	5	3											
9	lighthouse005.jpg	5	3											
10	lighthouse005.jpg	5	3											
11	lighthouse005.jpg	5	3	3										
12	lighthouse010.jpg	10	4											
13	lighthouse010.jpg	10	5											
14	lighthouse010.jpg	10	4											
15	lighthouse010.jpg	10	4											
16	lighthouse010.jpg	10	4	4.2										
17	lighthouse015.jpg	15	6											
18	lighthouse015.jpg	15	5											

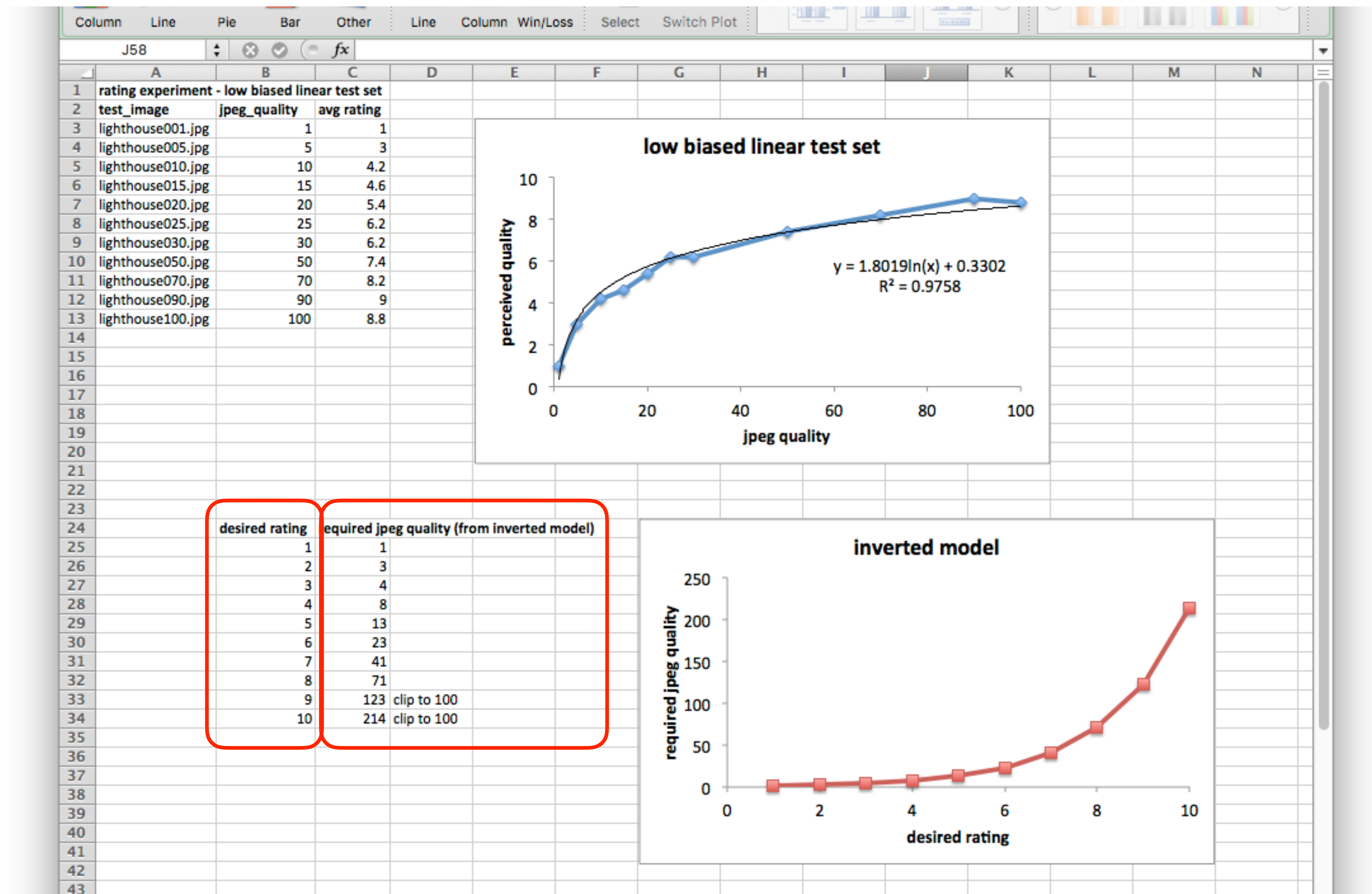
- Sort all the data by the “test_image” column.
- Create a new column called “avg_rating”, and in this column calculate the averages of the “slider.response” values for images with the same jpeg quality.
- Select the column headers and the rows that contain the average rating values as shown, copy these rows.

Lab 4 assignment: rating experiment analysis



8. Paste these rows into a new spreadsheet page using the “Paste special” command with the “values” and “skip blanks” items checked as shown.
9. Delete the “slider.response” data column.
10. Create a scatterplot that plots jpeg_quality vs. avg_rating/percieved quality as shown.
11. Use the “fit trendline” command to fit a model to the data (find the best fitting linear, log, or power model).

Lab 4 assignment: modeling

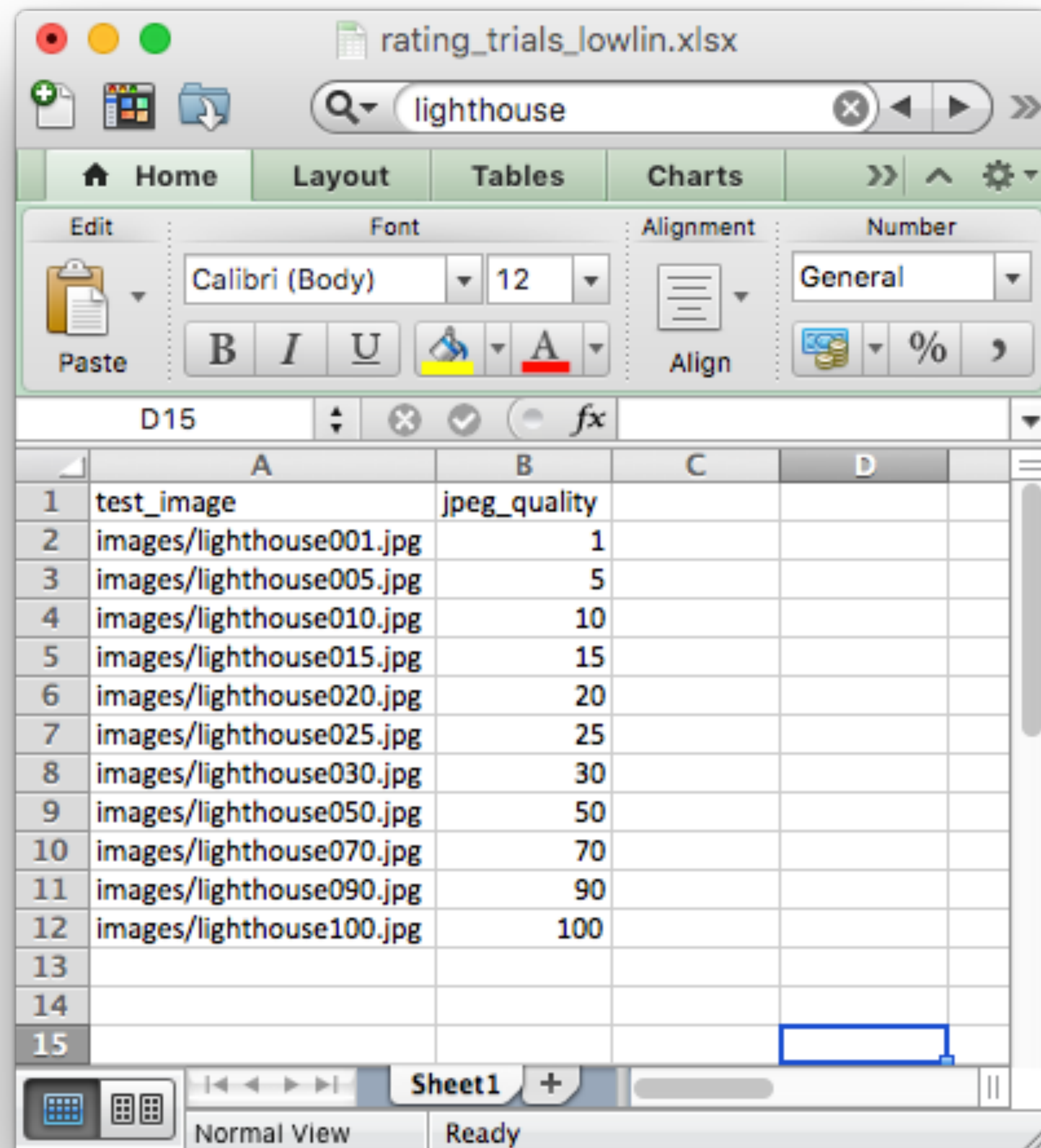


12. Create a column of data called “desired rating” that runs 1-10.

13. Invert the model found in the step 11 to predict the required jpeg image quality to produced the desired rating. Clip to 1-100 any values that fall outside that range.

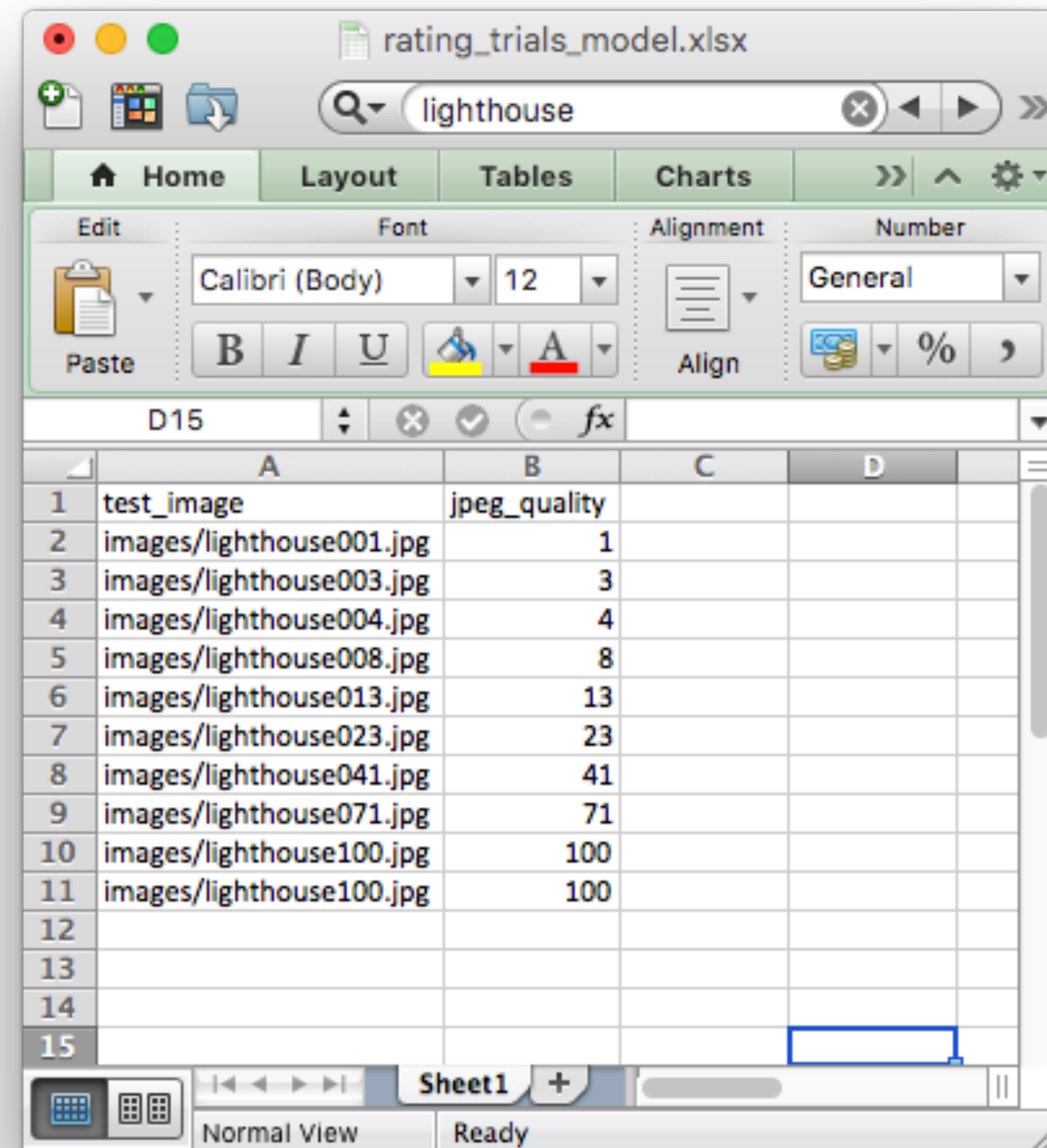
14. Plot the inverted model as shown.

Lab 4 assignment: model testing



The screenshot shows an Excel spreadsheet titled 'rating_trials_lowlin.xlsx'. The spreadsheet has a search bar at the top with 'lighthouse' entered. Below the search bar is a ribbon with tabs for Home, Layout, Tables, and Charts. The Home tab is active, showing options for Edit, Font, Alignment, and Number. The spreadsheet itself has columns A, B, C, and D. Row 1 has headers 'test_image' in column A and 'jpeg_quality' in column B. Rows 2 through 12 contain data for images with qualities ranging from 1 to 100. The status bar at the bottom indicates 'Normal View' and 'Ready'.

	A	B	C	D
1	test_image	jpeg_quality		
2	images/lighthouse001.jpg	1		
3	images/lighthouse005.jpg	5		
4	images/lighthouse010.jpg	10		
5	images/lighthouse015.jpg	15		
6	images/lighthouse020.jpg	20		
7	images/lighthouse025.jpg	25		
8	images/lighthouse030.jpg	30		
9	images/lighthouse050.jpg	50		
10	images/lighthouse070.jpg	70		
11	images/lighthouse090.jpg	90		
12	images/lighthouse100.jpg	100		
13				
14				
15				

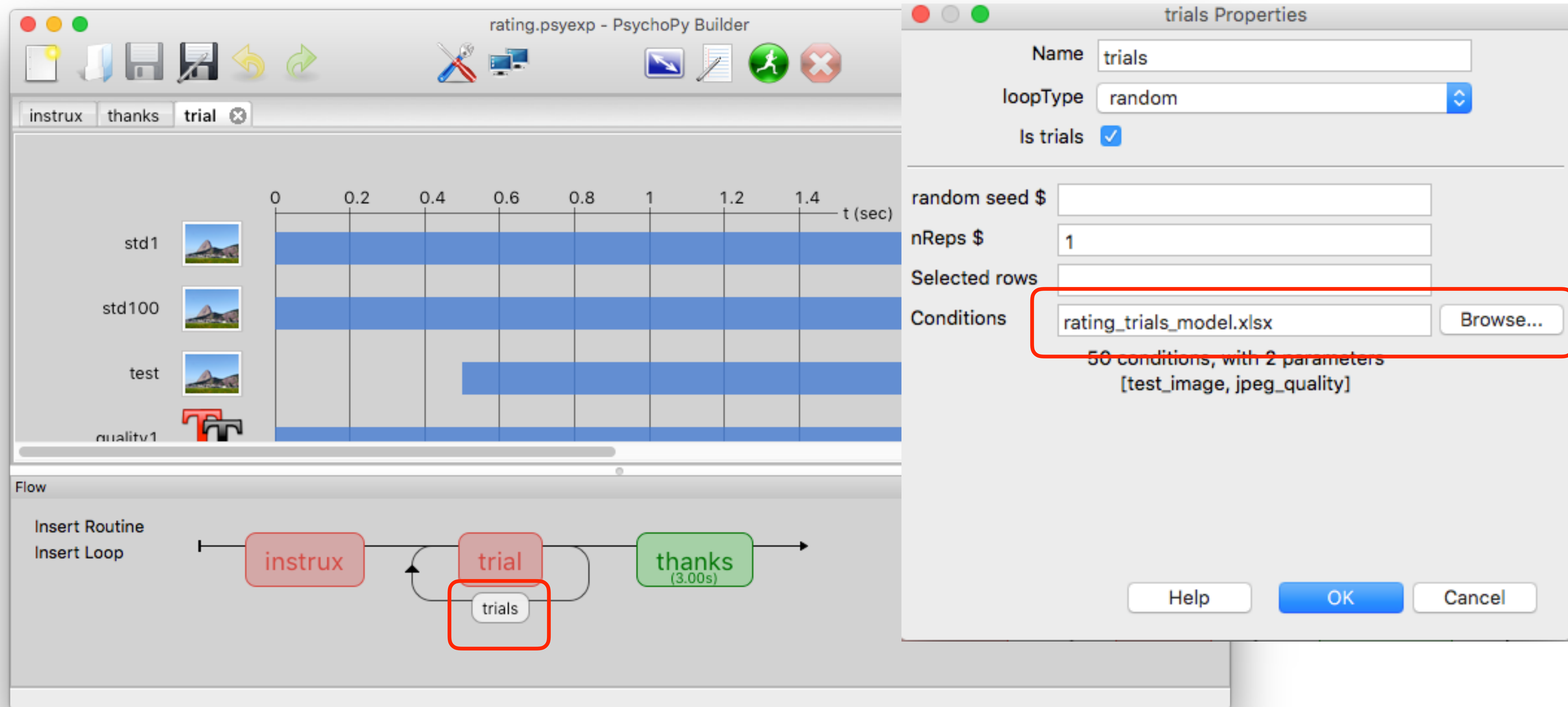


The screenshot shows an Excel spreadsheet titled 'rating_trials_model.xlsx'. The spreadsheet has a search bar at the top with 'lighthouse' entered. Below the search bar is a ribbon with tabs for Home, Layout, Tables, and Charts. The Home tab is active, showing options for Edit, Font, Alignment, and Number. The spreadsheet itself has columns A, B, C, and D. Row 1 has headers 'test_image' in column A and 'jpeg_quality' in column B. Rows 2 through 11 contain data for images with qualities ranging from 1 to 100. Rows 12 through 15 are empty. The status bar at the bottom indicates 'Normal View' and 'Ready'.

	A	B	C	D
1	test_image	jpeg_quality		
2	images/lighthouse001.jpg	1		
3	images/lighthouse003.jpg	3		
4	images/lighthouse004.jpg	4		
5	images/lighthouse008.jpg	8		
6	images/lighthouse013.jpg	13		
7	images/lighthouse023.jpg	23		
8	images/lighthouse041.jpg	41		
9	images/lighthouse071.jpg	71		
10	images/lighthouse100.jpg	100		
11	images/lighthouse100.jpg	100		
12				
13				
14				
15				

15. The datafile that drives the rating experiment is called **rating_trials_lowlin.xlsx**. In this file are the names of the images to be presented and their jpeg qualities.
16. Copy this file to a new file called **rating_trials_model.xlsx**
17. Edit the file as shown to replace the lowlin data set with the set of images and qualities specified by your inverted model.
18. Save the file in the experiment folder.

Lab 4 assignment: model testing



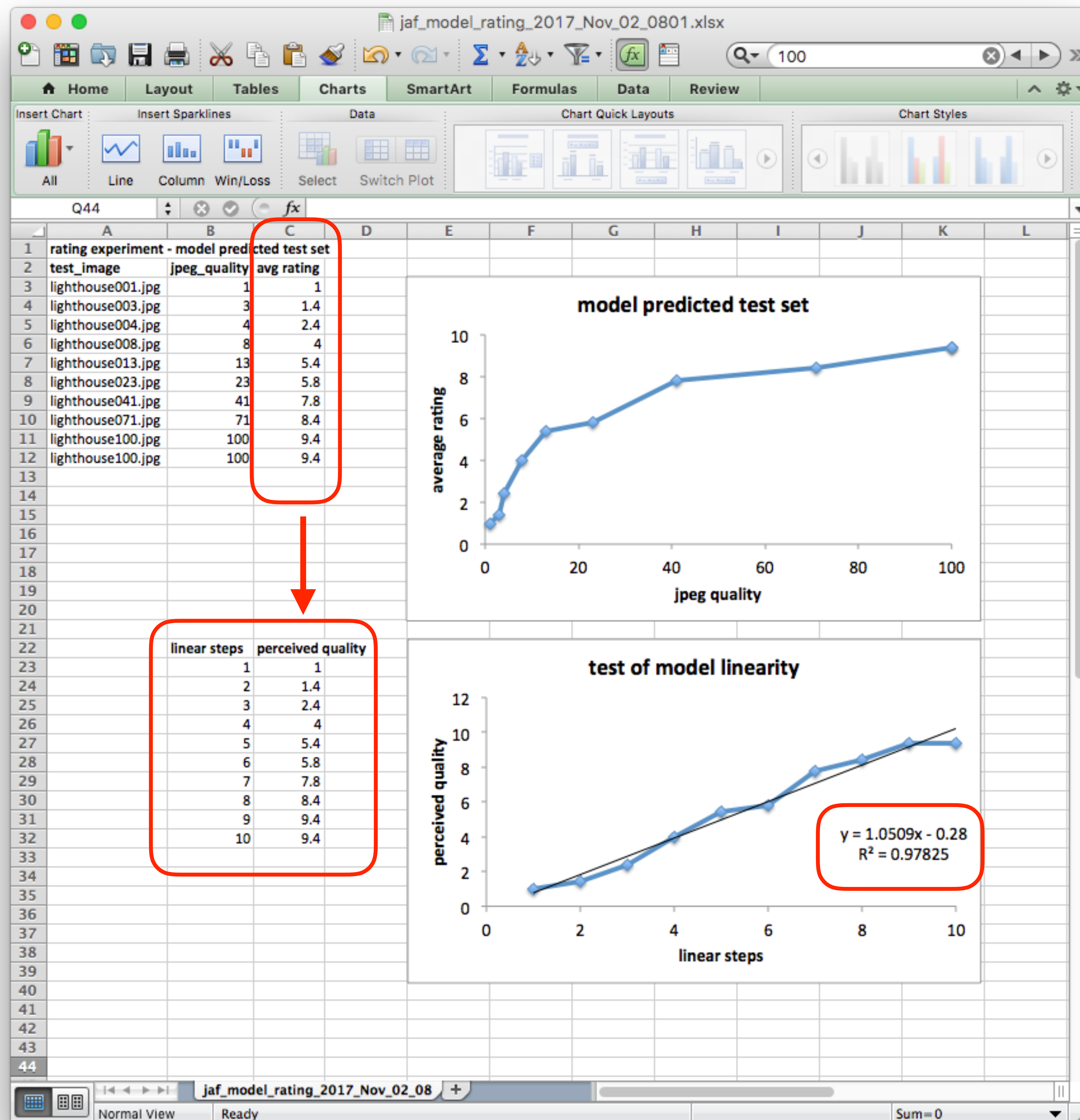
19. Open the rating experiment in PsychoPy and click on the “trial” loop item in the Flow pane.

20. In the “trial Properties” dialog, click Browse... Navigate to and open your **rating_trials_model.xlsx** file. Click ok.

21. Run the rating experiment using your model-predicted stimulus set.

21.1. Make sure to use a unique participant id so you can find the experiment .csv file.

Lab 4 assignment: model validation



22. Open the .csv results file from the experiment.

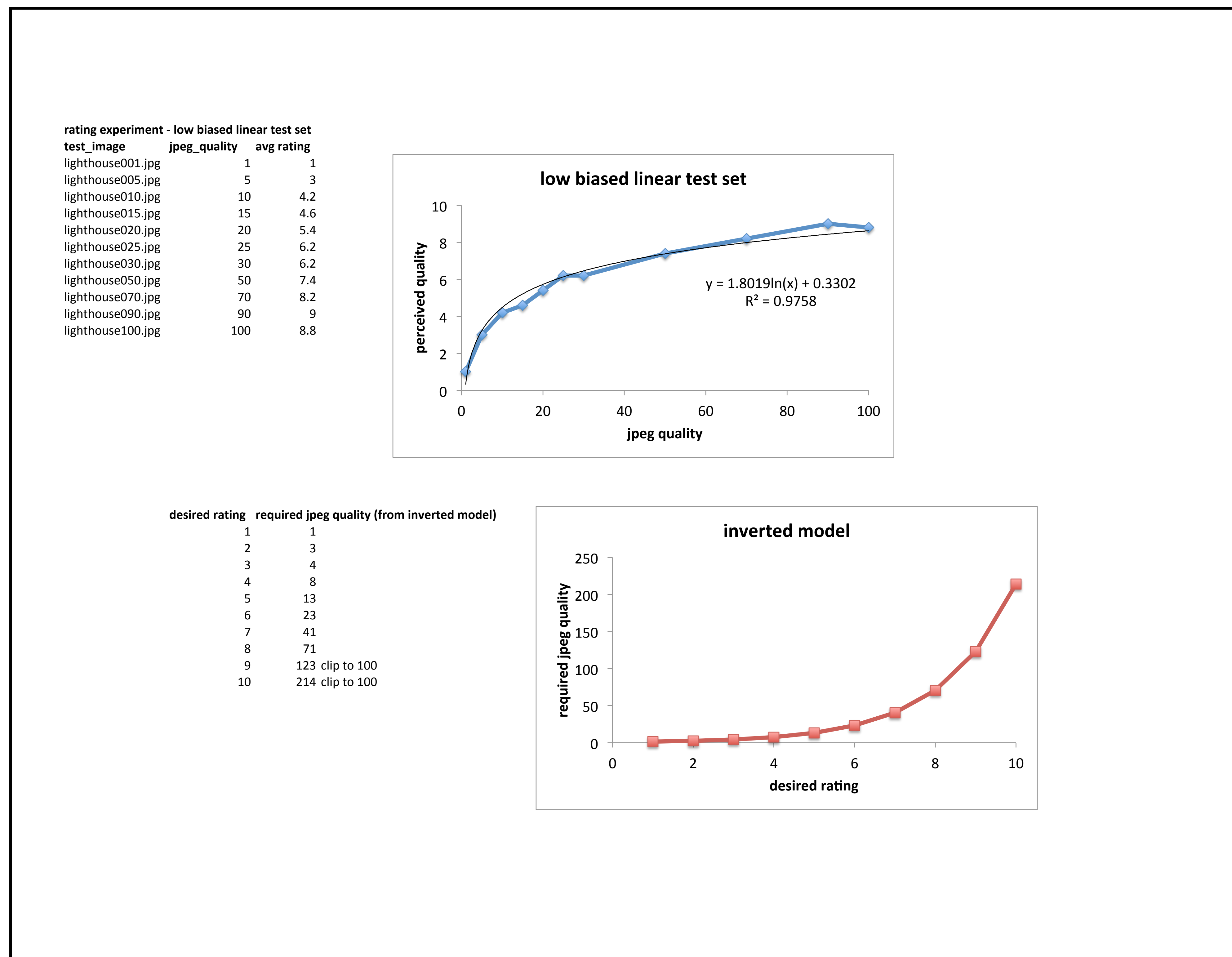
23. Redo the analysis outlined in steps 3-10 on this new dataset as shown.

24. Visualize the perceived linearity of the model-specified jpeg_quality values by plotting the avg_rating/perceived_quality values vs. a 1-10 scale.

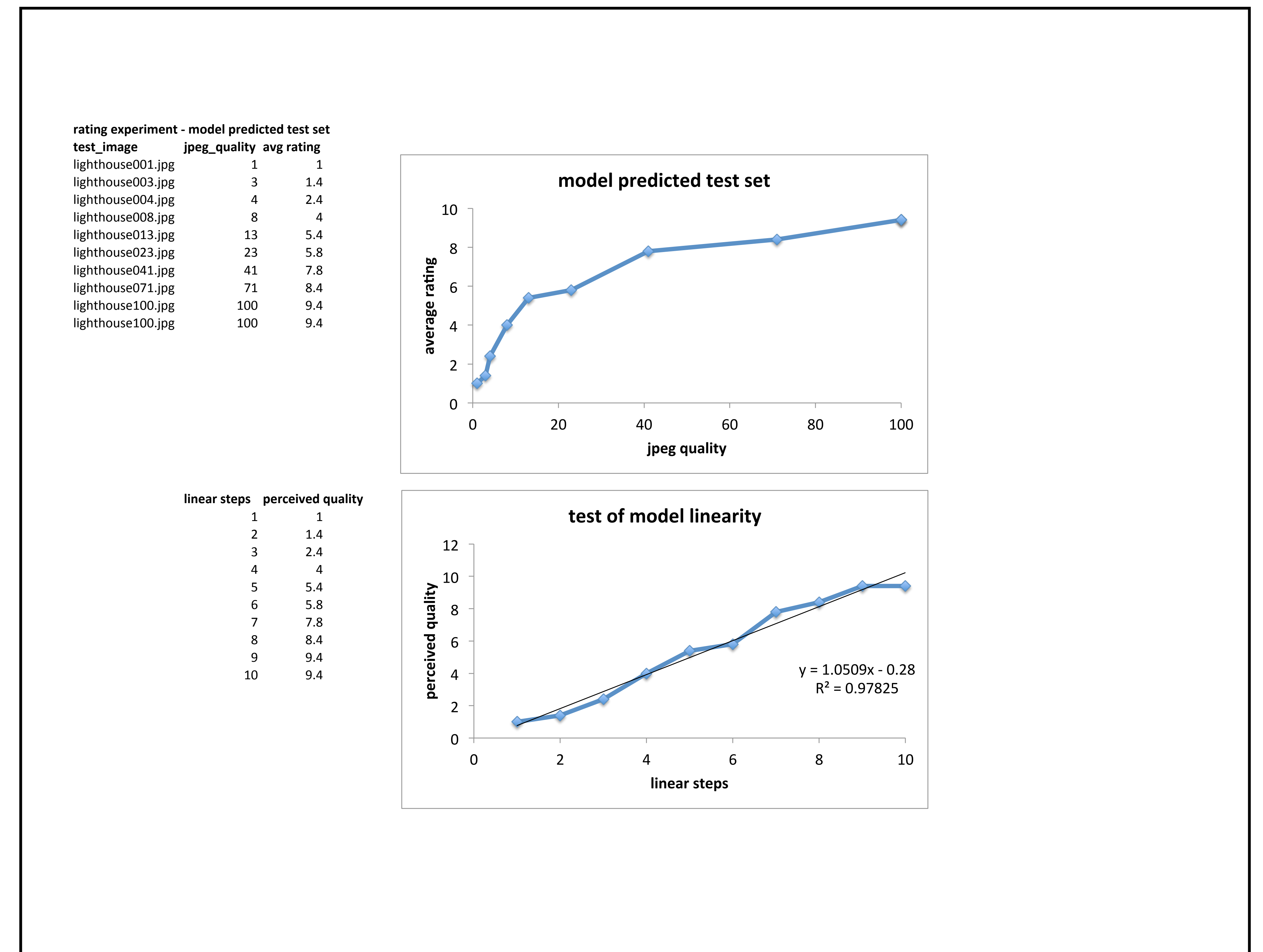
25. Test the linearity of the model by fitting a linear function to the plotted data as shown.

Lab 4 assignment: results

experiment 1: rating_trials_lowlin



experiment 2: rating_trials_model



16. Create a well-formatted 2 page PDF named **yourlastname_lab3_analyses.pdf** that documents the your analyses of the two experiments as shown above. Use the images above as a guide for layout and formatting. Your document does not have to be identical, but it should be mathematically correct, correctly labeled, and legible.

Lab 4 assignment: submission

17. Create a zip file named **yourlastname_lab4.zip** that contains the following
 - 17.1. The original .csv data files from your runs of the two experiments.
 - 17.2. The .xlsx files that contain your analyses of the data from the experiments.
 - 17.3. The 2-page PDF you created in step 16
18. Submit the zip file to the lab4 dropbox by the due date

If for some reason your analysis is not working out, contact me for help and advice on how to proceed. For this reason do not wait until the last minute to do this assignment.